

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A crystalline non-homogeneous adsorbent comprising a zeolitic crystalline core having a size between 0.2 and 50 μm combined with at least one crystalline zeolitic continuous outer layer having a thickness between 0.1 μm and 100 μm wherein the core of said adsorbent has a volume adsorptive capacity representing at least 35% of the volume of the adsorbent and the outer layer has a diffusional selectivity greater than 5, said core having a diffusional selectivity lower than that of the outerlayer, and wherein said core and said outer layer are compositionally different.
2. (Currently Amended) A crystalline non-homogeneous adsorbent according to claim 1, wherein the volume adsorptive capacity of the core represents at least 40% of the volume of the adsorbent.
3. (Currently Amended) A crystalline non-homogeneous adsorbent according to claim 1, wherein the diffusional selectivity of the outer layer is greater than 10.
4. (Currently Amended) A crystalline non-homogeneous adsorbent according to claim 1, wherein the adsorptive capacity of the core is greater than that of the continuous outer layer.
5. (Cancelled)
6. (Cancelled)
7. (Cancelled)
8. (Cancelled)

9. (Cancelled)
10. (Cancelled)
11. (Currently Amended) A crystalline non-homogeneous adsorbent according to claim 1, wherein the continuous outer layer has a thickness between 0.1 and 10 μm .
12. (Cancelled)
13. (Currently Amended) A crystalline non-homogeneous adsorbent according to claim 1 in spherical or cylindrical form.
14. (Currently Amended) A crystalline non-homogeneous adsorbent according to claim 13, wherein the radius of the core represents at least 40% of the total radius of the adsorbent.
15. (Currently Amended) A gas- or vapour- separation process comprising passing a multicomponent gas through a zone comprising the crystalline non-homogeneous adsorbent according to claim 1.
16. (Currently Amended) A liquid-separation process comprising passing a multicomponent gas through a zone comprising the crystalline non-homogeneous adsorbent according to claim 1.
17. (Cancelled)
18. (Currently Amended) A crystalline non-homogeneous adsorbent according to claim 1, wherein the core comprises a faujasite structural type zeolite and the outer layer comprises an MFI structural type zeolite.

19. (Currently Amended) A crystalline non-homogeneous adsorbent according to claim 18, wherein the faujasite structural type zeolite comprises zeolite X and the MFI structural type zeolite comprises silicalite-1.
20. (Currently Amended) A gas separation process comprising passing a multi component gas through a zone comprising the crystalline non-homogeneous adsorbent according to claim 18.
21. (Previously Presented) A process according to claim 20, wherein said gas comprises mono-branched paraffins and di-branched paraffins.
22. (Currently Amended) A crystalline non-homogeneous adsorbent according to claim 12, produced by first preparing a solid zeolite core and next preparing a dispersion of a second zeolite for the outer layer and adhering particles of said outer layer zeolite to said core zeolite.
23. (Currently Amended) A process for producing the crystalline non-homogeneous zeolitic adsorbents according to claim 1, comprising preparing a solid core of a first zeolite and a dispersion of nano particles of a second zeolite, and contacting said dispersion with said solid core so as to adhere particles of said second zeolite onto said first zeolite.
24. (Cancelled)
25. (Cancelled)
26. (Cancelled)
27. (Currently Amended) A crystalline non-homogeneous adsorbent according to claim 1, wherein the core of the adsorbent has a negligible diffusional resistance.